

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

PSB NMP No. _____

Application of BDE East Montpelier Lazar Solar, LLC)
Pursuant to 30 V.S.A. § 219a and Board Rule 5.100)
authorizing the installation and operation of a 500 kW)
solar group net-metered electric generation facility)
located off of Route 2 in East Montpelier, Vermont)

**PREFILED TESTIMONY OF
ALLISON D. KIMBALL
ON BEHALF OF
BDE EAST MONTPELIER LAZAR SOLAR, LLC**

Summary of Testimony

Ms. Kimball’s testimony supports the proposed project by BDE East Montpelier Solar, LLC (Applicant) to install and operate a 500 kW ground mounted group net metering solar electric generation facility off of Route 2 in East Montpelier, Vermont and addresses the proposed electrical system components and the project’s compliance with 30 V.S.A. § 248(b)(3) system stability and reliability.

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1 **I. Introduction**

2 Q1. Please state your name, current employer, business address, and position.

3 A1. My name is Allison D. Kimball. I am a Vermont licensed engineer specializing in the
4 design of commercial and utility scale photovoltaic systems. I work for KMB Design
5 Group, which is located at 1800 Route 34, Suite 209, Wall, New Jersey 07719. BDE
6 East Montpelier Lazar Solar, LLC (the “Applicant”) has retained KMB to assist with the
7 design and permitting for the 500 kW (AC) group net-metered system.

8

9 Q2. Please describe your educational background and work experience.

10 A2. Please see my resume attached as Exhibit BDE-AK-1 (resume).

11

12 Q3. Have you testified previously before the Public Service Board?

1 A3. Yes. I provided pre-filed testimony in Docket 8665, BDE Grand Isle Solar LLC (5 MW
2 solar project) and the recently filed net-metering 500 kW solar application BDE Danville
3 Lazar Solar LLC.

4
5 Q4. What is the purpose of your testimony?

6 A4. My testimony supports the Petition by the Applicant for a Certificate of Public Good
7 pursuant to 30 V.S.A § 219a and Board Rule 5.100 to construct a 500 kW ground
8 mounted group net-metered solar electric generation project located off of Route 2 in
9 East Montpelier, Vermont (the “Project”). I describe the proposed electrical system
10 components and the Project’s compliance with 30 V.S.A. § 248(b)(3) system stability.

11
12 Q5. Please describe the proposed electric system, including collector and feeder lines and
13 interconnection with Green Mountain Power Corporation (“GMP”).

14 A5. The Project will consist of approximately 2,684 crystalline solar PV modules,
15 approximately 260 watts each, mounted on a fixed tilt racking system. The racking
16 system will use a pile-driven post system for supporting the racking and will be
17 configured to be at a fixed tilt of approximately 20 degrees. Approximately 17 string
18 inverters dispersed across the array will be used to convert the DC power generated by
19 the modules to AC power that can be utilized by the utility. The Applicant will install
20 electrical panelboards to collect the output from the inverters and distribute this to the
21 main AC switchboard. The Applicant will use a mini-power zone to convert the 480 V
22 AC power output from the switchboard to 120/240 V that can be used for the

1 miscellaneous system support equipment. The Applicant may use a concrete pad to
2 support the AC switchgear, mini-power zone and monitoring system components.

3
4 In order to interconnect the Project to GMP's existing 12,470V distribution system, GMP
5 will need to extend its existing distribution system from an existing pole located just off
6 Route 2 to the Project. This line extension will require the Applicant to install
7 approximately three new distribution poles. The first pole shall extend the existing three
8 phase service across Route 2 and be located on the north side of Route 2. The second
9 pole will extend from that point to the north approximately 230 feet along the access
10 drive. The third pole will extend to the north east approximately 60 feet and be located at
11 the southern edge of the Project site. This pole shall carry the necessary pole mounted
12 transformers.

13
14 The new GMP pole at the Project site will be used for three (3) 167 kVA pole mounted
15 transformers used to step the voltage up from 480V from the AC switchboard to 12,470V
16 to match GMP's existing distribution voltage at the Project site. GMP will be installing
17 secondary metering at the new pole used for the three (3) 167 kVA pole mount
18 transformers for the Project. This pole will also be used as the underground riser pole for
19 the 480 V AC service from the pole to the utility service disconnect and subsequent AC
20 switchboard. An underground electrical system will be utilized to distribute the DC and
21 AC portions of the system to the necessary equipment. The entire Project will be
22 surrounded by a perimeter fence with minimum height of eight feet with approximately

1 6" vertical spacing. Please see the Electrical One-line Diagram filed at Exhibit BDE-AK-
2 2 and the Site Plan filed with testimony of Andrew Thomas, Exhibit BDE-AT-2.

3
4 Q6. Does the Project design comply with the National Electric Code.

5 A6. Yes. The Project will be designed to meet the requirements of the National Electric
6 Code, including the proposed fence as shown in Exhibit BDE-AT-3.

7
8 **II. Section 248 Criteria**

9 **System Stability and Reliability**

10 [Section 248(b)(3)]

11 Q7. Will the Project adversely affect system stability and reliability?

12 A7. No. Please see the One-Line Diagram attached as Exhibit BDE-AK-2. The Project will
13 not adversely affect system stability and reliability. The Project will interconnect with
14 GMP's existing 12,470V distribution system located on Route 2 in East Montpelier,
15 Vermont. GMP has completed a Fast Track Analysis for the Project. Please see Rule
16 5.500 Fast Track Analysis as Exhibit BDE-AK-3. The Applicant will implement and/or
17 pay for all of the recommendations and requirements outlined in the GMP Fast Track
18 Analysis and thus, the Project can interconnect to the existing GMP distribution system
19 without adversely effecting system stability and reliability. The Applicant shall not
20 commence construction until it receives interconnection approval from GMP. Thus, the
21 Project will not adversely affect system stability and reliability.

1 The Project failed Criterion 3 of the Fast Tract Study, but GMP has explained in a
2 supplemental review included with the Fast Track Study that no system impact study is
3 required. GMP's supplemental review explains:

4 The addition of the Project exceeds the minimum load requirement to
5 suppress overvoltage concerns from generating resources due to faults in
6 the distribution system. However, GMP believes that overvoltage concerns
7 are prohibited by the inverter protective elements per IEEE 1547. In an
8 event that overvoltage occurs in excess of 125% once the Project has been
9 connected, remediation steps shall be implemented to maintain the power
10 quality, reliability and safety of GMP's electric distribution system and the
11 Project must pay the costs of system upgrades.

12
13 Also, any potential reverse flow on existing line equipment due to the
14 addition of the Project will be handled accordingly. The substation
15 regulator settings will be equipped with co-generator settings to accept
16 reverse flow conditions back to the subtransmission system. Additionally,
17 the reverse flow back to the sub transmission system will be addressed by
18 GMP with the addition of a 3Vo scheme or equivalent system in order to
19 detect overvoltage conditions on un-faulted phases caused by single phase
20 line to ground faults on the 34.5 kV transmission system.

21
22 Q8. Will new distribution lines be necessary?

23 A8. No. A short 12,470V line extension will be required from the existing GMP distribution
24 system to the Project site. The line extension will be used for the (3) 167 kVA pole
25 mounted transformers needed to the serve the Project.

26

27 Q9. Does this conclude your testimony?

28 A9. Yes.

EXHIBIT LIST

Exhibit BDE-AK-1	Resumé
Exhibit BDE-AK-2	Electrical One-line Diagram
Exhibit BDE-AK-3	GMP Fast Track Analysis